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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,114	01/23/2002	Louis Robert Litwin JR.	PU020002	7375

7590 10/06/2004  
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EXAMINER

MOISE, EMMANUEL LIONEL

ART UNIT PAPER NUMBER

2136

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/055,114

Applicant(s)

LITWIN ET AL.

Examiner

Emmanuel L. Moise

Art Unit

2136

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/13/03, 1/23/02  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-20 are presented for examination.

#### ***Specification***

2. The disclosure is objected to because Applicant is requested to provide the U.S. application serial numbers of the related applications cited on page 1, first paragraph, of the disclosure.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-7, 10-17, and 19-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Morelos-Zaragoza (U.S. Patent No. 6,487,692, hereinafter "Morelos").

As per claims 1, 11, and 19, Morelos teaches a method for performing data error

Art Unit: 2136

correction of a Codeword --said method being performed in a cyclic linear block code error correcting decoder having at least four blocks (see Figure 2), said blocks including a syndrome generating block (202), an error polynomial block (208), an error location block (204), and an error magnitude block (210)--, the method comprising:

calculating a syndrome ... (202);

generating an error polynomial from said syndrome ... (208);

determining an error location from said error polynomial ... (204); and

calculating an error magnitude from said error polynomial ... (02).

Morelos also teaches that at least one of the four blocks is adapted to transmit an inactivity message to the other ones of said at least four blocks. See also column 2, line 48 – column 3, line 6.

As per claims 2, 12, and 20, Morelos teaches that method further comprises the act of correcting said codeword responsive to said error location and said error magnitude (column 3, lines 7-13).

As per claims 3-4 and 14-15, making the inactivity message a ready-to-receive or a ready-to-send message does not depart from the scope and spirit of Morelos' invention since Morelos teaches all the claimed features (See Figure 2).

As per claims 5 and 16, Morelos teaches that the error polynomial block is a Euclid's algorithm block (column 3, lines 13-16).

As per claim 6, Morelos teaches that the error polynomial block is a Berlekamp-Massey algorithm block (column 3, lines 13-16).

As per claims 7 and 17, Morelos teaches that the error location block is a Chien search block (Figure 2, element 204).

As per claims 10 and 13, Morelos teaches that the cyclic linear block code error correcting decoder is a Reed-Solomon decoder (column 2, lines 50-52 and 64-66).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 8, 9, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morelos (U.S. Patent No. 6,487,692) in view of Pan et al. (U.S. Patent No. 6,415,413, hereinafter "Pan").

As per claims 8-9 and 18, Morelos does not explicitly disclose that the error location block and the error magnitude block are performed within a combined Chien/Forney block. Pan, however, in an analogous art, discloses a Reed Solomon decoder including a Galois field

Art Unit: 2136

computation unit (Figure 4, element 206) that executes a Chien search algorithm and a Forney algorithm to thereby generate a corrected codeword (column 4, lines 55-59). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the claimed invention by modifying Morelos' decoder based on the teachings of Pan. The motivation would have been to provide a Reed Solomon controller that is highly configurable to implement Reed Solomon decoding for different data communications applications.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Reference 5,905,740 (Williamson) discloses an apparatus and method for determining at most four error locations of RS encoded data read from a storage medium.

Reference 6,345,376 (Cox et al.) discloses a method and means for efficient on-the-fly error correction in linear cyclic codes using ultra-fast error location.


Reference 6,735,737 (Sankaran et al.) discloses a parallel Chien search by partitioning the nonzero elements of a root field and using a parallel Galois multiplier.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel L. Moise whose telephone number is (703)305-9763. The examiner can normally be reached on M-W (9:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on (703)305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2136

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Emmanuel L. Moise  
Primary Examiner  
Art Unit 2136